49

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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/081,392	02/21/2002	Donald Martin Monro	4362-4001	1579

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EXAMINER
PARSONS, CHARLES E

ART UNIT	PAPER NUMBER
2613	

DATE MAILED: 02/10/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) FROM
THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed
  after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
  Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any
  earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL.**   2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is
closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☐ Claim(s) _____ is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,2,5-12 and 16-27* is/are rejected.

7)☒ Claim(s) *3,4 and 13-15* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☒ All   b)☐ Some *   c)☐ None of:

      1.☐ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____.

      3.☒ Copies of the certified copies of the priority documents have been received in this National Stage
application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
    Paper No(s)/Mail Date *4/8/2003 8/8/2002*.

4) ☐ Interview Summary (PTO-413)
    Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____ .

DETAILED ACTION

Claim Rejections - 35 USC § 103

1.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness

rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set
> forth in section 102 of this title, if the differences between the subject matter sought to be patented and
> the prior art are such that the subject matter as a whole would have been obvious at the time the
> invention was made to a person having ordinary skill in the art to which said subject matter pertains.
> Patentability shall not be negatived by the manner in which the invention was made.

2.   Claims 1,2, 5-12, 16-27 are rejected under 35 U.S.C. 103(a) as being unpatentable over DeHaan

in view of Roy.

Claim 1: A method of video motion estimation for determining the dominant motion in a video

image, said dominant motion being defined by a parametric transform which maps the

movement of an image block from a first frame of the video to a second frame; the

method comprising: (The Examiner interprets the Parametric transform to be a Motion

vector.)

(a) selecting a plurality of blocks in the first frame, and matching said blocks with their

respective block positions in the second frame; (It has been well established that this is

how motion vectors are detected and derived.)

(b) from the measured movements of the blocks between the first and second frames,

calculating a plurality of estimates for a parameter of the transform; (See DeHaan

column 7 lines 15-40)

(c) sorting the parameter estimates into an ordered list; (See DeHaan column 7 lines 43-

65)

(d) determining a best global value for the parameter by examining the ordered list. (See

DeHaan column 8 line 18 through column 9 line 15. While he does not specifically say

that he examines an ordered list, determining the best value via a calculation like the one

DeHaan is using provides the same result as evaluating a graph thus it is considered a

matter of design choice. Never the less Roy teaches the use of a graph for similar

purposes, see column 2 lines 59-64. Therefore at the time the invention was made, it

would have been obvious to one of ordinary skill in the art, to make a graph of values in

order to derive the best one. One would have been motivated by DeHaans teaching that

other methods could be used as well as a general that graph were widely used for

examining trends determining global values.)

Claim 2, 21: A method as claimed in claim 1 in which the best global value is determined by

differentiating the ordered list to create an output list, and selecting a minimum value of

the output list. (See Roy column 2 lines 59-64)

Claim 5, 6: A method as claimed in claim 1 in which a parameter estimate is calculated for each

selected block in the first frame. (See DeHaan column 7 lines 43-65.)

Claim 7: A method as claimed in claim 1 in which the transform has a plurality of parameters, and

in which two estimates for each of two parameters are calculated for each pair of

selected blocks in the first frame. (See DeHaan column 7 lines 43-45)

Claim 8: A method as claimed in claim 1 in which the transform is a similarity transform. (See

column 6 and 7 of Roy, since the claim does not define exactly what a similarity transform

is, the Examiner takes it as any transform the points out similarities in parameters.)

Claim 9: A method as claimed in claim 8 in which an estimate of translation parameters in x and y

are calculated for each selected block in the first frame, the best global estimates for the

translation parameters in x and y being determined from respective ordered lists. (See

DeHaan column 7 lines 45-65 as well as Roy column 6 lines 63-65.)

Claim 10, 11: A method as claimed in claim 8 in which an estimate of zoom is calculated for each pair of selected blocks in the first frame, the best global zoom value being determined from a zoom values ordered list. (See DeHaan column 8 lines 41-65.)

Claim 12: A method as claimed in claim 8 in which an estimate of zoom and rotation is calculated for each pair of selected blocks in the first frame, the best global zoom and rotation value being determined from respective zoom and rotation value ordered lists. (See DeHaan column 9 lines 4-15.)

Claim 16, 17. A method as claimed in claim 1 in which the transform has a plurality of parameters, the method including determining a best global value for one of the parameters, then recomputing the matches and determining the best global value for another of the parameters on the basis of the re-computed matches. (See DeHaan column 7 43-65 as well as column 8 lines 41-43.)

Claim 18, 27: A method as claimed in claim 8 including carrying out a preliminary calculation to determine whether the rotation is small and, if so, using a similarity transform which excludes consideration of rotation. (At the time the invention was made it was well known in the art to exclude small amounts of motion since such motions could be associated with camera shake. Therefore it would have been obvious to one of ordinary skill in the art to exclude said motion from any calculations.) Official Notice served

Claim 19: A method as claimed in claim 1 including selecting a plurality of pairs of blocks in the first frame. (See DeHaan figure 2)

Claim 20: A method as claimed in claim 19 in which the blocks are selected in a herringbone

pattern. (The use of a herringbone pattern is not disclosed to serve a particular purpose

or provide for an unexpected result therefore it is considered a matter of design choice.)

Claim 22, 24: A method of video motion computation comprising determining the dominant

motion in a video image as claimed in any one of the preceding claims, and

compensating for the dominant motion between the first and second frames. (See

rejection for any one of the preceding claims as it applies to the rejected claims. If this

claim were to depend from an objected to claim then it too would be objected too. As for

the motion compensation part, motion compensation is an inherent feature to any MPEG

codec.)

Claim 23. A codec including a motion estimator for estimating video motion according to any one

of claims 1 to 21. (See rejection for any one of the preceding claims as it applies to the

rejected claims. If this claim were to depend from an objected to claim then it too would

be objected too. As for the codec, both Dehaan's system as well as Roys system could

be implemented in a codec.)

Claim 25, 26: A computer program arranged to carry out a method as claimed in any one of

claims 1 to 22. (See rejection for any one of the preceding claims as it applies to the

rejected claims. If this claim were to depend from an objected to claim then it too would

be objected too. It has been well established that a computer could be programmed to

carry out any method including this one.)   Official Notice Served

Allowable Subject Matter

1.   Claims 3, 4, 13-15 are objected to as being dependent upon a rejected base claim, but would be

allowable if rewritten in independent form including all of the limitations of the base claim and any

intervening claims. The following is a statement of reasons for the indication of allowable subject matter:

The combination of elements claimed including all of the elements in all of the interceding claims was not found in a prior art search nor considered obvious by the Examiner.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Charles E Parsons whose telephone number is 703-305-3862. The examiner can normally be reached on M-TH 7AM to 5 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Chris Kelley can be reached on 703-305-4856. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

CEP